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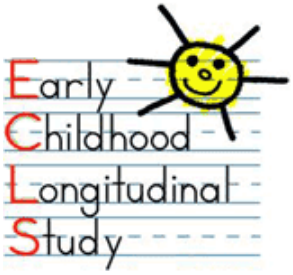

Data Collected Through the ECLS-B: Child Assessment Data

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Module Objectives

- Describe the ECLS-B direct child assessments data

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ECLS-B Assessment Plan

- Obtain measures of growth using repeated measures at multiple time points
- Obtain, wherever possible, direct measures of multiple aspects of child development and functioning
- Obtain information about a broad spectrum of children's early experiences

The ECLS-B has two publicly available psychometric reports that present information on the cognitive, physical, and socioemotional assessments

- Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) Psychometric Report for the 2-year Data Collection
- Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) Preschool-Kindergarten 2007 Psychometric Report

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Direct Child Assessments

		Domain		
		Cognitive Development	Physical Development	Socioemotional Development
Data Round	9 months	Bayley Short Form—Research Edition (BSF-R) Mental Scale	Bayley Short Form—Research Edition (BSF-R) Motor Scale Height, Weight, Middle Upper Arm Circumference (MUAC), Head Circumference	Nursing Child Assessment Teaching Scale (NCATS)
	2 years	Bayley Short Form—Research Edition (BSF-R) Mental Scale	Bayley Short Form—Research Edition (BSF-R) Motor Scale Height, Weight, Middle Upper Arm Circumference (MUAC), Head Circumference	Two Bags Task Toddler Attachment Sort-45 Items (TAS-45)
	Preschool	Early Reading and Mathematics	Fine and Gross Motor Assessments Height, Weight, Middle Upper Arm Circumference (MUAC), Head Circumference	Two Bags Task
	Kindergarten 2006 & 2007	Early Reading and Mathematics	Fine and Gross Motor Assessments Height, Weight, Middle Upper Arm Circumference (MUAC), Head Circumference	(No direct measures; parents, teachers, & early care and education providers report on child's social skills.)

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Bayley Short Form, Research Edition (BSF-R)

- An adaptation of the Bayley Scales of Infant Development (BSID-II)
- Needed to shorten and simply. Did this by
  - Reducing the number of items and materials
  - Reducing complexity of tasks and language
  - Simplifying the scoring and instructions
  - Having some items scored after data collection by study staff other than field staff conducting the home visit

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Bayley Short Form, Research Edition (BSF-R) (Continued)

Structure of the BSF-R: Item sets

- Core items
  - Administered to all children
  - At 9 months, targeted ages 8-10 months
  - At 2 years, targeted ages 23-25 months

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Bayley Short Form, Research Edition (BSF-R) (Continued)

- **Basal**
  - Administered after the core items if the child achieved a low score on the core set
  - At 9 months, went as low as 3-4 months
  - At 2 years, went as low as 8-9 months
- **Ceiling**
  - Administered after the core items if the child achieved a high score on the core set
  - At 9 months, went as high as 22 months
  - At 2 years, went as high as 47 months

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Bayley Short Form, Research Edition (BSF-R) (Continued)

BSF-R Overall Mental Knowledge and Skills: Scale Scores

- For both 9 months and 2 years, assessment results are presented on the data file as
  - an overall scale score [X1MTLSCL; X2MTLSCL] potential range of 0-178
  - a standardized *t*-score [X1MTLTSC; X2MTLTSC] $\bar{x}$ = 50 and SD =10

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Bayley Short Form, Research Edition (BSF-R) (Continued)

BSF-R Specific Mental Knowledge and Skills: Proficiency Probabilities

- For both 9 months and 2 years, assessment results are also presented as proficiency probability scores
  - Probability child had acquired skills represented in the set
  - Each skill based on performance on 4 to 6 items
  - Continuous range from 0 to 1
  - The higher the score, the more likely it is that the child had acquired the skills measured in the item set

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Bayley Short Form, Research Edition (BSF-R) (Continued)

BSF-R Specific Mental Knowledge and Skills: Proficiency Probability Levels

Level A. Explores objects [X1MTL_A; X2MTL_A]
Level B. Explores purposefully [X1MTL_B; X2MTL_B]
Level C. Jabbers expressively [X1MTL_C; X2MTL_C]
Level D. Early problem solving [X1MTL_D; X2MTL_D]
Level E. Names objects [X1MTL_E; X2MTL_E]
Level F. Receptive vocabulary [X1MTL_F; X2MTL_F]
Level G. Expressive vocabulary [X1MTL_G; X2MTL_G]
Level H. Listening/comprehension [X1MTL_H; X2MTL_H]
Level I. Matching/discrimination [X1MTL_I; X2MTL_I]
Level J. Early counting/quantitative [X1MTL_J; X2MTL_J]

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Development of the Cognitive Battery

Preschool and Kindergarten

- No one existing measure could fulfill the study requirements
- Data collection timing changes were made from a year-round model to one data collection in the fall of the school year
- To assess mental knowledge and skills, ECLS-B developed more targeted assessments of early mathematics and reading knowlede and skills
- The Bayley Short Form, Research Edition that was used to assess early cognitive development had to be replaced with a more appropriate assessment for children 4 to 6
- A direct cognitive assessment was developed to provide information on school readiness in terms of reading, mathematics, and color knowledge for 4 to 6 year-olds
- To ensure that the assessment covered a braod range of skills and topics, was efficient in terms of time and complexity of administration, and that it was developmentally appropriate for 4 to 6 year-olds, a variety of items from the following sources were used
    - Peabody Picture Vocabulary Test (PPVT), the Test of Early Mathematics (TEMA), the Woodcock Johnson, the Comprehensive Test of Phonological Processing (CTOPP), the preLas 2000, and items designed for the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K)

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Content Domains in the Cognitive Battery

Reading

- Examines children's letter recognition, letter sound knowledge, recognition of simple words, phonological awareness, receptive and expressive vocabulary knowledge, and knowledge of print conventions

Mathematics

- Examines children's number sense, counting, operations (e.g., addition, subtraction, multiplication, division), geometry, pattern understanding, and measurement

Color Knowledge [Preschool only]

- Examines children's knowledge of basic colors

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Structure of the Cognitive Battery for Reading and Mathematics

- The reading and mathematics direct cognitive assessments were adaptive in design; not all children received all items
- The structure of the assessments in preschool was somewhat different from the structure of the assessments in the kindergarten collections
- **Preschool**
  - For the early reading domain, there were separate assessments measuring language and literacy. The language portion was administered to all children. The literacy portion was only administered to children who demonstrated sufficient English language skills on the language portion of the assessment.
  - The preschool mathematics assessment included a routing test and two second-stage forms: basal and ceiling. Performance on the routing items determined which additional items a child received.

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Structure of the Cognitive Battery for Reading and Mathematics (Continued)

- **Kindergarten**
  - Assessments in each domain began with a set of routing items administered to all children
  - Performance on the routing items determined which additional items a child received
  - Assessments in each domain had three possible second-stage tests: low, medium, and high difficulty
- In both the preschool and kindergarten collections, discontinue or stopping rules were used at various points in the reading and mathematics assessments to ensure that children would not be asked to answer questions beyond the level of ability they had already demonstrated

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Reading Knowledge and Skills: Scores

Cognitive Development Preschool and Kindergarten

- Theta Score [X3RTHR2; X4RTHR2; X5RTHR2]
  - Ability estimate based on children's performance on the reading assessment
  - Ranges from approximately -2 to 2
  - Normally distributed
- Overall Scale Score [X3RSCR2; X4RSCR2; X5RSCR2]
  - Based on theta
  - Estimate of the number of items the child would have gotten correct
  - Ranges from 0 to 85

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Expressive Language

Cognitive Development Preschool and Kindergarten

- A portion of the reading assessment involved a telling stories task
- The field interviewer pointed to a series of pictures while telling the child a scripted story. After each story was completed, the child was asked to retell the story, using the pictures as a prompt if needed.

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Expressive Language (Continued)

- Children's responses were audiotaped and later coded by trained, reliable coders using a standardized coding scheme
  - 0 = No response (includes "I don't know") or no response in English
  - 1 = Short, isolated phrases; at least one word in English
  - 2 = Disconnected thoughts, at least one sentence, many grammatical errors
  - 3 = Recognizable story line, limited detail, grammatical errors
  - 4 = A recognizable version of a story in coherent, fluent sentences
  - 5 = Articulate, detailed sentences, vivid vocabulary, and complex constructions

Cognitive Development Preschool and Kindergarten

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Mathematics Knowledge and Skills: Scores

- Theta Score [X3MTHR2; X4MTHR2; X5MTHR2]
  - Ability estimate based on children's performance on the mathematics assessment
  - Ranges from approximately -2 to 2 for the majority of children assessed
  - Normally distributed
- Overall Scale Score [X3MSCR2; XMRSCR2; X5MSCR2]
  - Based on theta
  - Estimate of the number of items the child would have gotten correct
  - Ranges from 0 to 71

Cognitive Development Preschool and Kindergarten

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Color Knowledge: Scores

Cognitive Development Preschool and Kindergarten

- Children were first asked to name the colors of five bears to which an assessor pointed
  - A child received 2 points for each color identified in this way
- For all of the colors that the child could not initially name, the assessor asked, "Can you find the [NAME OF COLOR] bear?"
  - A child received 1 point for each color identified in this way
- The color knowledge scale score X3COLOR is the sum of these points with a potential range of 0 to 10

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All Data Collection Rounds

Physical Development All rounds

- Weight: measured twice (in kilograms)
- Height/Length: measured twice (in centimeters)
- Body Mass Index: derived from height and weight
- Middle Upper Arm Circumference (MUAC): measured twice with a specialized measuring tape formed into a loop (in centimeters)
- Head Circumference (*for very low birth weight children only*): measured twice with a specialized measuring tape formed into a loop (in centimeters)

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BSF-R Overall Motor Skills: Scale Scores

For both 9 months and 2 years, assessment results are presented on the data file as

- an overall scale score [X1MTRSCL; X2MTRSCL] potential range of 0-178
- a standardized *t*-score [X1MTRTSC; X2MTRTSC] $\bar{x}$ = 50 and SD =10

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BSF-R Specific Motor Skills: Proficiency Probabilities

For both 9 months and 2 years, assessment results are also presented as proficiency probability scores

- Probability child had acquired skills represented in the set
- Each skill based on performance on 4 to 6 items
- Continuous range from 0 to 1
- The higher the score, the more likely the child had acquired the skill

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BSF-R Specific Motor Skills: Proficiency Probabilities Levels

Level A. Eye-hand coordination [X1MTR_A; X2MTR_A]
Level B. Sitting [X1MTR_B; X2MTR_B]
Level C. Prewalking [X1MTR_C; X2MTR_C]
Level D. Stands alone [X1MTR_D; X2MTR_D]
Level E. Skillful walking [X1MTR_E; X2MTR_E]
Level F. Balance [X1MTR_F; X2MTR_F]
Level G. Fine motor control [X1MTR_G; X2MTR_G]
Level H. Uses stairs [X1MTR_H; X2MTR_H]
Level I. Alternating balance [X1MTR_I; X2MTR_I]
Level J. Motor planning [X1MTR_J; X2MTR_J]

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Fine Motor Skills

- Assessed by asking the child to draw basic geometric shapes and to build with blocks
- Scores on the data file
  - Item-level data with information about the child's performance on each item
    - Variables begin with C*FM
  - Composite variables indicating overall performance on the building items [X3FMBLCK] and the drawing items [X*FMFORM]
  - Information on which hand was used for drawing the shapes

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Gross Motor Skills

- Assessed by asking the child to jump, balance and hop on one foot, skip, walk backward, and catch a bean bag
- Scores on the data file
  - Item-level data with information about the child's performance on each item
    - Variables begin with C*GM
  - No composite scores
  - For the balance on one foot and hop on one foot items, information on which foot the child attempted first and how many tries (up to 3) the child attempted are also on the file

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Nursing Child Assessment Teaching Scale (NCATS)

- Fielded in the 9-month data collection during the home visit
- Structured teaching task in which the parent was given a standard list of age-appropriate activities and asked to select one that the child was not yet able to do, such as stacking blocks
- Provides information on the parent-child relationship, particularly parent and child responsiveness to one another
- Interactions were videotaped and then coded later by trained coding staff

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NCATS Scores

- Total Parent Score [X1NCATTP]
  - Focus is on the parent's teaching behaviors (e.g., reads and responds appropriately to child cues; structures task; and fosters child's learning); number of behaviors displayed by the parent (50 items total)
- Total Child Score [X1NCATTC]
  - Focus is on child's response to the parent (e.g., clarity with which child communicates with parent; responds clearly and appropriately to parent behavior); number of behaviors displayed by the child (23 items total)
- Total Score [X1NCATTS]
  - Focus is on parent and child interaction (e.g., parent's teaching behaviors and child's response to the parent); number of behaviors displayed by both parent and child (73 items total)

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Two Bags Task

- Modification of the Three Bags Task
- Structured reading and play interaction between parent and child
- Parent presented with two bags, one with a book and the other with a play activity (at 2 years it was a set of dishes and at preschool the second bag contained Play-Doh®, two cookie cutters, and a rolling pin)
- Provides information on the quality and quantity of certain parent behaviors, such as parental sensitivity, as well as some child behaviors, such as engagement
- Interactions were videotaped and then coded later by trained coding staff

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Two Bags Task Scores

- Parent scales: Emotional Supportiveness (Positive Regard; Parental Sensitivity)*; Negative Regard; Intrusiveness; Cognitive Stimulation; Detachment
- Child scales: Engagement and Negativity (At 2 years also coded Sustained Attention; at Preschool coded Quality of Play)
- Each scale (score) reflects a different behavioral domain and ranges from 1 to 7, where a high score represents a high "frequency" of that behavior

*For the 2-year round, the Two Bags data were coded for *parental positive regard* and *parental sensitivity* separately. At the preschool round, the data were coded for *emotional supportiveness*

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Toddler Attachment Sort, 45 items (TAS-45)

- Shortened version of an Attachment Q-Sort
- Computerized card sort used to determine parent-child attachment type
- Items were observable behaviors, such as *hugs and cuddles against mother without being asked to do so, takes off and explores new things on own, or gets upset if mother leaves and shifts to another place*
- 45 items that the field interviewer sorted into four piles ranging from "almost always applies" to "rarely or hardly ever applies" to the child

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Toddler Attachment Sort, 45 items (TAS-45) Scores

- Traditional attachment classification [X2TASCLS]
  - B (Secure); A (Insecure-Avoidant); C (Insecure-Ambivalent); D (Insecure-Disorganized)
- Hotspot scores [X2TASHS1 through X2TASHS9]
  - Domains of attachment-related constructs that were used to determine children's attachment classification
  - Hotspot domains: Warm and Cuddly; Cooperative; Enjoys Company; Independent; Attention Seeker; Upset by Separation; Avoids Others; Demanding/Angry; Moody/Unusual
  - Hotspot scores can be used independently, for example one could examine the association of sociability (as measured by the hotspot *enjoys company*) with later socioemotional functioning
- Security [X2TASSEC] and dependency [X2TASDEP]

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Indirect Measures of Socioemotional Skills and Behavior

In the Preschool and Kindergarten Collections

- Information collected from a variety of sources, such as the child's parent, the child's care provider, and the child's teacher
- Information on constructs related to children's early learning experiences, such as prosocial skills, approaches toward learning, problem behaviors, emotional knowledge, and temperament
- Socioemotional batteries developed with items from existing scales and instruments:
  - Preschool and Kindergarten Behavior Scales, Second Edition (PKBS-2)
  - Social Skills Rating System (SSRS)
  - Family and Child Experiences Study (FACES)
  - Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K)
- Item-level data included on the data file

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Module Summary and Resources

Summary

- Described the ECLS-B direct child assessments data

Resources

- Early Childhood Longitudinal Study, Birth Cohort (ECLSB) Psychometric Report for the 2-year Data Collection
- Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) Preschool—Kindergarten 2007 Psychometric Report
- ECLS-B Variable Naming Conventions Resource
- Proficiency Probability Level Definitions Resource
- Hotspots Scores Resource